

RESEARCH SUMMARY REPORT
For MyPyramid Food Guidance
System Development

August 2005

United States Department of Agriculture
Center for Nutrition Policy and Promotion

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OVERVIEW

The United States Department of Agriculture's (USDA) Food Guide Pyramid is a widely recognized nutrition education tool designed to help Americans eat more healthfully. Introduced in 1992, it was developed to translate the nutrition recommendations of the 1990 *Dietary Guidelines for Americans* into the kinds and amounts of food to eat each day. Since that time, although the Pyramid enjoys widespread recognition among U.S. adults, few adults have put its healthy eating messages into practice. In addition, advances in nutritional science and additional knowledge about health behavior patterns have enhanced the need to update or replace the Pyramid.

In 2001, almost 10 years after the Food Guide Pyramid's inception, USDA's Center for Nutrition Policy and Promotion (CNPP) initiated an effort to review and update the Food Guide Pyramid, its suggested food intake patterns and graphic presentation, as well as to develop new educational materials for professionals and consumers. This multi-faceted (and ongoing) process has included many phases, including the development of the MyPyramid Food Guidance System that has replaced the Food Guide Pyramid. This report summarizes the primary and secondary consumer research findings that fostered the development of the MyPyramid Food Guidance System. Each of the following research events and their contributions to the development process are discussed below:

- Focus groups on consumer use of the Food Guide Pyramid
- Focus groups on Food Guidance System messaging
- Synthesis of the public input submitted in response to CNPP's Federal Register Notice and benchmark review
- Focus groups on new graphic concepts
- Initial qualitative Web-TV test of graphic concepts
- Final qualitative Web-TV test of potential graphic concepts
- Usability test of MyPyramid.gov

Qualitative Research

All primary research conducted for this project (focus groups, Web tests, and usability test) was qualitative in nature. Qualitative research provides valuable insights into a particular group's thoughts, feelings, and perspectives. It also enables the researcher to explore the motivations and underlying factors that drive preferences.

Recruiting techniques and small sample size, however, mean that results are not statistically representative of a larger population. Consequently, all findings were considered descriptive and directional. This direction provided by participants throughout this research program impacted the development of the MyPyramid Food Guidance System.

RESEARCH EVENTS

Consumer Use of the Food Guide Pyramid

Background

In May 2002, CNPP contracted with Systems Assessment & Research, Inc., Lanham, Md., to assess the following issues:

- Consumer understanding of the Food Guide Pyramid's concepts and messages
- The extent to which the Pyramid conveys these concepts and messages
- How consumers use the Pyramid to make food choices and any barriers that complicate consumers' use of the tool.

A total of 18 focus groups were conducted during May and June 2002.¹ Six of the groups were held with general consumers. The remaining 12 groups were evenly split among three specialized audiences: elderly consumers (over 60 years of age), food stamp recipients, and overweight consumers (BMI over 30). Sessions were held in Baltimore, Houston, and Chicago.

Results

Symbol Familiarity

Many participants indicated that they were familiar with the Food Guide Pyramid, explaining that they had seen the symbol in doctors' offices, clinics, on food packages, at the grocery store, in schools, in the media, or in Women, Infants, and Children (WIC) offices. In addition, many participants mentioned some of the nutrition messages the Pyramid was designed to convey, including the importance of eating a variety of foods (foods from every level of the Pyramid), moderation, and proportionality (eat more from the base and less from the tip).

Despite this familiarity with the Pyramid and recognition of some of its nutrition messages, participants had difficulty recalling more specific information about the tool and did not always understand this information correctly. Less than one-fifth of participants were able to place all food groups in the Pyramid on their correct tiers,² and one-in-eight could not place a single food group on its correct tier. More than half of the participants, however, placed the fats, oils, and sweets group correctly atop the Pyramid.

Participants also expressed a great deal of confusion regarding serving sizes. They were not able to effectively recall the serving size recommendations for each food group, nor were they able to compare how their typical meals correspond to the recommendations. Also, many participants could not ascertain the difference between the terms "serving"

¹ A total of 178 individuals participated in these groups.

² Respondents were only instructed to place food groups on their correct level of the Pyramid, as opposed to placing them in their correct position.

and “portion.” Most thought the words were interchangeable. Regarding possible alternatives, most participants suggested using weights or measures, such as ounces or cups, to express recommended serving sizes. They reasoned that these measures are commonly understood.

When asked how they personally decide how much to eat, most participants cited factors such as hunger, appetite, food preferences, cost, and convenience, with no reference to recommended serving sizes. In addition, after being given the Pyramid’s serving size recommendations, participants misunderstood the need for a range of servings for each group. They thought that the ranges of servings allow for flexibility of choice for an individual within and across groups instead of relating to people’s varying caloric needs.

Barriers to Usage

Most participants indicated they had not used the Food Guide Pyramid, frequently identifying the serving size recommendations as one barrier. Confusion about the range of servings, difficulty converting meal portions into serving sizes, and questioning recommended amounts (i.e., some participants believed grains were overrepresented) fostered this sentiment. Some participants offered additional barriers, such as that the food groups were difficult to remember and that the Pyramid does not reflect individual dietary needs and/or preferences.

Consumer Recommendations

Participants provided a number of suggestions they thought would make it easier for people to use the Pyramid and follow its recommendations. Many participants proposed providing more detailed serving size information, with some reiterating that using exact measurements (e.g., ounces, cups) would foster increased comprehension. Several participants advised developing an interactive Web site that would provide additional information about the Pyramid and the foods included in each group.

Participants added that any materials used to promote the Pyramid should be colorful and eye-catching. Several advised color-coding the Pyramid and including these colors on food packages to help consumers understand and remember where a food item maps onto the Pyramid.

Research Implications: The focus groups revealed that although the Food Guide Pyramid enjoys high levels of recognition, consumers viewed it as a general guideline and expressed difficulty understanding its intended, specific nutrition messages. Given these findings, CNPP reviewed the following items as it prepared to develop the Food Guidance System:

- Serving size terminology – Participants expressed the need to make the recommendations more concrete and applicable to the consumer.
- Making the graphic more user-friendly and attractive – Participants suggested color-coding food groups for easy recall.

- Simplifying the graphic – Participants exhibited that they did not understand the details associated with the Food Guide Pyramid’s messages. These findings suggested that the symbol for the Food Guidance System should not be tasked to communicate detailed information. It should instead convey primary messages and concepts.
- Providing a location for additional information – Participants suggested developing an interactive Web site to offer further explanation regarding the Pyramid and its messages.
- Personalizing the information – Participants requested to have nutrition information individualized by age and gender. They did not understand where to place themselves within the range of recommended serving sizes provided by the Food Guide Pyramid.

Focus Groups on Food Guidance System Messaging

Background

In March 2004, CNPP contracted with Annapolis Professional Resources, Inc., Annapolis, Md., to examine how consumers perceive and understand specific nutritional concepts and potential messages for the Food Guidance System. This study explored the following items:

- Whether alternative ways to describe the food recommendations would aid in consumer comprehension of them
- Consumers' ability to understand nutrition language and messaging regarding the following topics:
 - Grains
 - Vegetables
 - Types of Fats
 - Sugars and Added Sugars
 - Physical Activity Levels

A total of eight focus groups were conducted during February and March 2004.³ Four groups were conducted with younger adults (ages 20 to 49) and four with older adults (ages 50 to 79). Sessions were held in Baltimore and Chicago.

Results

Consumer Comprehension of Food Recommendations

The previous phase of research revealed confusion associated with the Food Guide Pyramid's serving size measurement system. This study presented participants with alternative ways to express serving recommendations for grains and fruit. For this research, the grain recommendations were measured in ounces, and the fruit recommendations were expressed in cups, replacing "servings" as the unit of measurement.

Participant reactions to this information supported the hypothesis that consumers would find it easier to comprehend specific measurements than "servings." When comparing the two measures, most participants initially found it easier to understand amounts expressed in "cups" rather than "ounces." They reasoned that cups are easier to measure and visualize. Despite this improvement in understanding the material, participants had mixed reactions as to whether they could apply this information to their daily food choices. When they were provided with examples of the measurements, however, they found the advice easy to understand.

³ A total of 75 individuals participated in these groups.

Some participants also expressed a desire to have these recommendations “individualized.” They noted that the recommended amounts should reflect age, activity level, and body size.

Language and Messaging: Grains

Overall, participants exhibited some confusion regarding language involving the Grains group. Participants were only able to provide general definitions for the term “whole grains.” Most likened the term to “whole wheat” or interpreted the term to mean “not processed.” Also, most only listed bread and cereal as foods that contained whole grains.

When asked about “enriched grains,” many participants speculated that they are grains that are processed or enhanced. Some posited that the phrase refers to vitamins and minerals being added to grains to replace nutrients that were removed during processing. Most participants considered enriched grains to be less healthy than whole grains.

Participants were also asked how they would follow the advice that half of the grains in their diet should be whole grains. They responded that a primary barrier to heeding this advice is knowing which foods contain whole grains. They said they would need to read food labels and/or ingredient lists to identify and learn about foods with whole grains.

Language and Messaging: Vegetables

Participants were asked about their knowledge of specific subgroups of vegetables and the degree to which they could comprehend nutrition messages about vegetable consumption. Participants provided multiple examples of vegetables from each of the following subgroups: dark green leafy vegetables, dry peas and beans, and “other” vegetables. Participants exhibited some difficulty naming starchy vegetables (except for potatoes, corn, and yams) and orange vegetables (except for carrots, orange bell peppers, squash, and sweet potatoes). Also, participants found it challenging to classify some vegetables (e.g., broccoli, brussel sprouts, green beans) into subgroups, and most were unfamiliar with the term “legumes.”

Participants interpreted “eat a variety of vegetables over the course of a week” as general guidance to mean not eating the same vegetables every day. Many participants believed the recommended amounts of vegetables to eat each week to be reasonable, but some found it easier to interpret the recommendation after converting it to how much they should eat daily. Barriers to following these messages included cost, convenience, personal preference for some vegetables over others, and difficulty measuring recommended amounts of vegetables.

Participants offered a number of suggestions to make it easier for consumers to understand the recommended amounts of vegetables. These ideas included visual examples of portion sizes, lists of vegetables for each subgroup, and providing information on the health benefits of specific vegetables.

Language and Messaging: Fats

Participants were very confused about fats and their impact on nutrition. When discussing fats generally, participants mentioned that there are “good fats” and “bad fats,” but they were unsure which fats fell into which category. Participants also found it difficult to indicate the types of fats in various foods, nor could they distinguish different types of fats.

Participants were more familiar with the terms “solid fats” and “oils.” They recognized the recommendation to lower the amount of solid fats in their diet by substituting oils for solid fats. Participants concurred that it was easier to understand this message than a message using the terms “saturated” and “unsaturated” fats.

Focus groups also asked participants to interpret the message, “Eat a moderate amount of fat.” To participants, the use of the word “moderate” suggested it was acceptable to eat some fat, but not to “overdo it.” They also commented that the vagueness of the word “moderate” prohibits the phrase from serving as a useful principle. Instead, they recommended including an actual amount of fat for clarification and specificity.

Language and Messaging: Sugars

Participants had no difficulty identifying foods that contain sugars, but they struggled to explain the difference between sugars and added sugars. Some confused added sugars with sugar substitutes.

Barriers to limiting sugar consumption included a proclivity for foods that contain sugars, the feeling that sugars are in “everything,” and that consumers have limited knowledge about both how many sugars they should consume daily and health risks associated with consuming excess sugars.

Language and Messaging: Physical Activity

Participants were asked to interpret a number of words and phrases utilized in physical activity recommendations. First, they were presented with the terms “sedentary,” “low active,” and “active.” Most participants defined a sedentary person as someone participating in little or no physical activity. Some associated this level of activity with illness or physical handicap. “Low active” referred to occasional exercise in addition to basic, daily activities, and “active” meant regular, intentional exercise at least three times a week.

Participants also explained that there is a difference between “exercise” and “physical activity.” To them, “exercise” was intentional activity above and beyond a normal daily routine, whereas “physical activity” was a more general term that encompasses the necessary activities of daily living (e.g., walking the dog, mowing the lawn).

When given standard definitions of sedentary,⁴ low active,⁵ and high active,⁶ most participants classified themselves as “low active” or “high active.” Only some of the older participants described their activity level as “sedentary.”

Research Implications: CNPP realized consumers were not able to understand the intended meanings of servings and serving sizes; they were more likely to comprehend household measures (e.g., cups and ounces) paired with examples. CNPP concluded that the new Food Guidance System would be better equipped to convey its food intake recommendations if it employed household measures instead of “servings.”

CNPP also recognized it could not assume a high level of consumer knowledge of nutrition terms. These focus groups revealed that even terms or phrases that enjoy high familiarity among participants (e.g., exercise, physical activity, sugars) do not necessarily translate into accurate interpretation or comprehension. As a result, it was determined that Food Guidance System materials must be designed to provide sufficient background information to enable consumers to better understand and implement its recommendations. In addition to clearly defining terms, the new Food Guidance System should identify the foods included in each group with clear explanations as to why these foods (e.g., whole grains, orange vegetables) are important elements of one’s diet. Information discussing complicated or less-familiar terms (e.g., *trans* fats, added sugars) should be presented with additional explanation.

⁴ Defined as “Only the activities of daily, independent living.”

⁵ Defined as “Physical activity equivalent to walking at least 1½ miles (about 30 minutes) per day in addition to the activities of independent living.”

⁶ Defined as “Physical activity equivalent to walking at least 3 miles (about 60 minutes) per day in addition to the activities of independent living.”

Federal Register Notice and Benchmark Review

Background

In July 2004, CNPP posted a Federal Register Notice to solicit public comment on the proposed Food Guidance System and its graphic presentation and education materials. The full text of this notice and letters in response to the notice can be found at <http://www.cnpp.usda.gov/cnpp/pyramid-update/>. Interested parties were asked to submit their comments by mail during the period of July 13, 2004, to August 27, 2004.

CNPP received 406 letters containing 1,212 individual comments in response to the Federal Register Notice (see Table 1). In addition, 27 individuals who had submitted letters also presented their comments orally at a public meeting on August 19, 2004. As part of OMB Clearance Number 0584-0523, CNPP asked Porter Novelli to conduct a review of submitted comments with respect to the Food Guidance System's graphic, educational materials, and dissemination strategies.

Table 1. Respondents Providing Comments to the USDA Federal Register Notice on the Food Guide Pyramid Update⁷

Type of Respondent	Number of Letters (N=406)
Health, nutrition, and educational professionals	86
Health associations	18
Trade associations	42
Industry	19
Government agencies (federal, state, and local)	14
Members of the general public	227

The Symbol's Shape

As listed above, representatives from various entities within the food and nutrition arena, as well as interested citizens responded to the Federal Register Notice. Many of their comments noted the primary challenge associated with updating the Food Guide Pyramid—the Pyramid enjoys a high level of recognition among the American public, yet it does not effectively convey nutrition messages. Many hypothesized that the Pyramid would not adequately convey updated recommendations from the 2005 *Dietary Guidelines for Americans*. As a result, many of the comments focused on whether to use an updated pyramidal shape for the new symbol or to completely depart from a pyramidal shape.

Those who suggested a new shape reasoned that a non-pyramidal form might be better suited to convey nutrition messages than a pyramidal shape. Other non-pyramidal proponents hypothesized that a revised symbol could generate significant media

⁷ Comments from the general public predominantly offered suggestions for the graphic image or provided views on other subjects. Professionals, professional or trade groups, or government agencies more consistently replied to multiple Federal Register Notice topics in their responses.

attention, providing an opportunity to both introduce the new symbol and educate the public about nutrition.

More comments favored the use of a pyramid-based or pyramid-influenced symbol than were submitted endorsing a non-pyramidal option. These comments primarily emphasized the importance of building on the Food Guide Pyramid's brand equity. They reasoned that since the Pyramid is recognized by a large majority of Americans, the focus should be on communicating its messages, not explaining a completely new design. They added, however, a pyramidal shape would need to be updated to improve upon limitations associated with the Food Guide Pyramid. Commenters suggested a number of changes to the internal structure of Pyramid.

Messaging Suggestions

There was general agreement on what key priorities should be included for Food Guidance System communication. Respondents both supported the mission to develop core Food Guidance System messages and their intended results. The list below includes both support for these priorities and issues respondents believed USDA should also consider for its Food Guidance System communications:

- ***Physical activity.*** Some respondents called physical activity “a vital addition to any Food Guidance System” because of the importance of achieving a balance between caloric intake and expenditure.
- ***Balancing calories eaten with calories expended.*** Considered a basic tenet of weight management, several comments noted the public's embracing this concept as central to stemming the obesity epidemic.
- ***Serving sizes.*** Comments deemed it important to help consumers better understand what constitutes a “serving” so they can assess whether the foods they eat meet (or exceed) recommendations.
- ***Nutrient density and options within food groups.*** Many comments suggested highlighting healthier choices within a category (e.g., lean cuts of meat) and various options for nutrients (e.g., nuts as a source of protein).
- ***Fruits and vegetables.*** Increasing Americans' fruit and vegetable consumption was viewed as a continuing challenge. Many comments lamented that American diets are particularly deficient in this area.
- ***Ethnic diversity as it relates to food.*** Some respondents also endorsed including cultural and/or ethnic foods (e.g., bok choy, okra, corn, and flour tortillas) in the Food Guidance System to allow it to be inclusive of various backgrounds.

- ***Reclassifying/Renaming food groups according to their nutrients.*** Some comments, for example, suggested designating the Milk, Yogurt, and Cheese Group as the Calcium Group.

Many respondents singled out two overall keys to effective nutrition communication—positive tone and specificity in terms of how people can comfortably fit healthy eating into their daily lives. They explained that positive tone can be manifested in ways such as using “substitution” words like “*replace* whole milk with skim” rather than emphasizing what *not* to eat or drink. The call for specificity served as a suggestion to better enable consumers to both understand recommendations and to perceive them as feasible to implement in their diets.

Educational Tool Versus Visual Cue

Comments were mixed as to the best role for a revised Food Guidance System graphic—that of educational tool versus that of visual cue/reminder/logo. Supporters of the former argued that some people will only encounter the graphic and will never seek further information. They reasoned, then, the graphic should stand alone and bear sufficient information to educate. A majority of responses, however, believed the graphic should instead serve as a visual reminder. They described the difficulty associated with conveying multiple, complex nutrition messages in a simple shape. As a result, they thought developing a visual reminder was a preferable course of action.

Regardless of the graphic’s shape or its core purpose, several respondents cautioned that USDA should control use of the graphic—through legal means, if necessary—in order to retain the clarity of the brand. This suggestion appeared to be in response to the many specialized pyramids that have been created by various agencies and organizations in the years since the Food Guide Pyramid’s introduction. These “other” pyramids were perceived by some to clutter the marketplace, confuse the public, and blur the messages of the original Food Guide Pyramid.

Interactive Guidance Tools

Input was also sought on the topic of developing effective interactive educational tools. Many comments, such as these below, offered general suggestions regarding how to create successful tools:

- Develop the tool so that it is easy to use. This ease-of-use includes easy access to the tool, as well as data entry and results interpretation.
- Employ an “easily-remembered” Web address and encourage hyperlinking from other sites.
- Engagement/interaction of the learner with the material is key; incorporate ongoing coaching and tailored behavioral feedback.
- Regularly add new or updated information to the Web site so the content does not become stale.
- If possible, adapt non-electronic, interactive tools to expand accessibility for “hard-to-reach” audiences, such as the elderly or low-income individuals.

Other comments offered recommendations for specific content areas:

- Include sample menus and recipes
- Recommend substitutions for over-consumed foods
- Illustrate how to use/read the Nutrition Facts Label
- Provide multiple food options, such as adding ethnic foods to reach more segments of the country's diverse population or providing alternatives for those with food allergies or intolerances.

Benchmark Review

In addition to this review of public comments, CNPP requested a synthesis of previously conducted research that could have potentially informed and impacted the development of the Food Guidance System. This synthesis included three principal components. The first piece summarized previous research related to the Food Guide Pyramid and its effectiveness. This review provided past perspectives and pinpointed the Pyramid's advantages and drawbacks (many of which were identified by public comments and the aforementioned first round of focus groups).

The second element of the benchmark review included a multifaceted assessment of online nutrition, physical activity, and weight loss tools and Web sites. This assessment, which informed the development of the interactive and educational tools related to the Food Guidance System, included three elements:

- A literature review of the usefulness and effectiveness of delivering health information via the Internet,
- A review of frequently-visited commercial, government, and nonprofit/advocacy organizations' Web sites, and
- A research-based summary of key elements of usable and successful Web sites.

Research Implications: The need to explore a new symbol emanated from new dietary recommendations and the need to enhance the Food Guide Pyramid's ability to communicate nutrition messages. Public comments offered reasons for maintaining a pyramidal shape (with updates) and investigating non-pyramidal forms. Hence, both pyramidal and non-pyramidal graphic concepts were developed and presented in the next round of research. These concepts also attempted to address the messaging limitations of the Food Guide Pyramid.

CNPP reviewed the messaging advice offered by public comments, and incorporated elements into the development of draft Food Guidance System materials. Key messages were presented to consumers in subsequent qualitative message testing (see Initial Web-TV test below) to determine their clarity and potential to prompt change in consumer behavior.

In addition, these results helped shape the decision to have the Food Guidance System symbol serve as a visual cue instead of an educational tool. Results helped confirm that Food Guidance System messages are too numerous to include in a single image.

Educational materials and a Web site to provide Food Guidance System nutrition information would also be designed to help educate consumers on the System's nutrition messages.

Focus Groups on Potential Graphic Concepts and Slogans

Background

In October 2004, ten 2-hour focus groups were conducted by Porter Novelli⁸, Washington, DC, among adults ages 21-60 who indicated that “healthy eating” is important to them⁹ but did not consider themselves experts in nutrition. Six sessions were conducted in Baltimore and four in Chicago. Groups were stratified by age, gender, Internet usage, and Body Mass Index score. Seventy-seven (77) adults participated in this phase of research.

Overall, these focus groups explored participants’ awareness of healthy eating messages and the information sources that conveyed those messages. They also assessed participants’ reactions to concepts designed to replace or update the Food Guide Pyramid. Specifically, participants ranked concepts on two criteria: overall appeal/piquing interest, and the concepts’ ability to encourage them to look for more information about nutrition.

A formative research design was employed for this phase of research. Findings from initial focus groups were used to improve concepts for testing in subsequent groups. As a result, participant reaction both impacted concept design and narrowed the scope of concepts that could potentially become the new symbol.

Graphic Concepts

A total of ten concepts were tested in each focus group. The concepts fell into one of three categories: Pyramid-based (concepts that were most similar to the Food Guide Pyramid’s shape), Pyramid-influenced (concepts that resembled a pyramidal shape), and Non-pyramidal (concepts that departed from the pyramidal shape). Each category and their corresponding icons are presented below.¹⁰

⁸ An independent contractor moderated the focus group sessions.

⁹ Participants indicated they agreed or strongly agreed to at least one of the following statements: “Having healthy eating habits is very important to me,” or “I am actively trying to eat a healthy diet.”

¹⁰ As noted in the background section, some of these concepts were modified based on focus group results from the first few nights of research. Modifications that impacted the concept development process will be subsequently noted and displayed.

Pyramid-Based



Concept U



Concept I



Concept H



Concept J

Pyramid-influenced



Concept N



Concept L



Concept O

Non-pyramidal



Concept W



Concept Y



Concept Z

Focus Group Exercises

Participants were instructed to sort the concepts twice during the focus groups. First, participants were asked to order the concepts from the most appealing and attention-getting one to the one that was least appealing and attention-getting and were instructed to record this order on a worksheet. The moderator then led a discussion asking participants to explain their preferences. The moderator also probed for the strengths and weaknesses of each creative concept.

Participants were also asked to sort the concepts a second time, using a different criterion. Since the Food Guidance System symbol would exist in a variety of media, participants were given an example of how these concepts might be used. Before the second sorting exercise, the moderator presented participants a poster and a computer animation, each of which illustrated how a concept could be expanded in content or animated to remind individuals to eat healthier and to encourage them to look for more information.

After seeing these examples, participants sorted the concepts placing the one that would be most effective at reminding them to eat healthier and at encouraging them to look for more information first, and the one that would be least effective, last. As with the first sorting exercise, participants were instructed to record their order on a worksheet for later analysis. The moderator then led a discussion asking participants to explain their preferences. The moderator also probed for the strengths and weaknesses of each creative concept, given this new criterion.

Overarching Themes

Although participants were asked to rate these graphic concepts on two separate scales, a number of recurring, overall themes emerged while participants explained their attraction to particular concepts. These themes included success and achievement, personal appeal, and motion and activity.

Success and Achievement

Many participants identified with concepts that conveyed success and achievement. They appreciated positive feelings that the concepts connoted and added that this positive reinforcement is important since these concepts are intended to help individuals make better nutrition and health decisions. Participants initially interpreted this positive impression from the figure atop Concept U. After refinements (see below), participants shared similar impressions of N₂, J₂, and J₃, each of which depicted characters on top or moving toward the top of their pyramids.

“Personal” Appeal

Participants also lauded concepts that were “personal,” or contained something to which participants could relate. To many participants, the mere inclusion of a human figure or form personalized a graphic concept.

Others shared that some of the concepts illustrated balance. These participants noted that they, personally, strive for balance in their lives, so the balance depicted in concepts spoke to them.

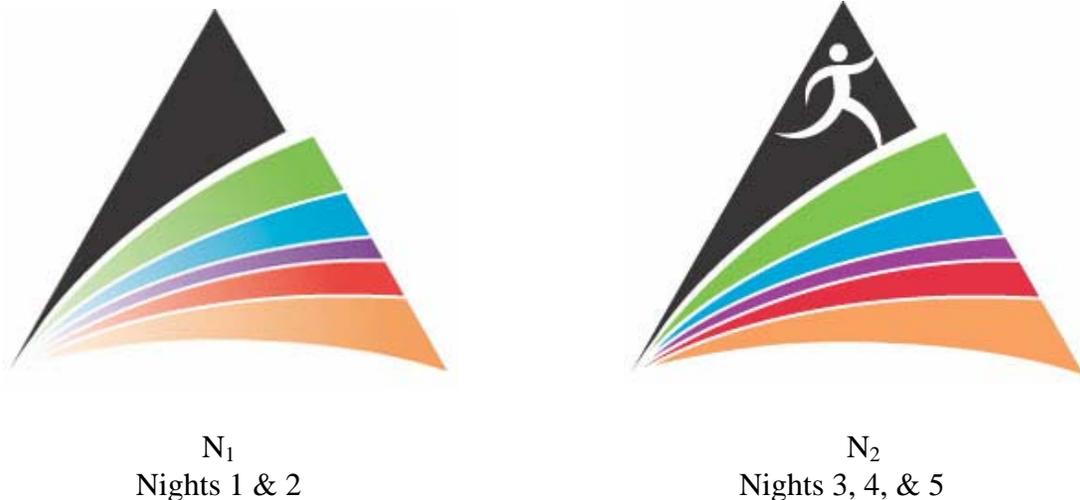
Motion and Activity

Many participants also gravitated toward graphic concepts that depicted motion and activity. Specifically, participants cited the movement conveyed by concepts N₁, N₂, J₃, and W as reasons why they selected them over others as most appealing.

Concept Refinements

As explained above, findings from the first few nights of focus groups were used to refine concepts for subsequent testing in remaining focus groups. Two concepts that received such refinements were concepts N and J.

Concept N



Participants from nights 1 and 2 reacted positively to the feeling of motion that N₁ conveyed, but they were less positive about the grading of the colors. They equated the fading colors with weakness. As a result, the grading was replaced with solid colors.¹¹ In addition, there was no “personal” connection to N₁. After the inclusion of the figure at

¹¹ This change was made to all tested concepts that contained grading.

the pyramid's apex, however, participants interpreted both physical activity ("the figure is running to the top") and success/achievement.

Concept J



Concept J received two modifications over the course of the groups. As was done for concept N₂, J₁'s gradient shading was replaced with solid colors and a figure was placed at the pyramid's summit. As a result, participants from Night 3 of focus groups interpreted feelings of accomplishment and success.

Despite these improvements, participants continued to have difficulty with the physical activity side of the pyramid, with some specifically objecting to the silhouetted approach to the steps. To address these comments, Concept J₃ was developed with a more detailed staircase. After this change, participants were able to make the connection between physical activity and healthy eating, in addition to interpreting success and achievement.

Results

Each concept's position relative to the other concepts was reviewed for each night of focus groups. This analysis was conducted for each sorting exercise to determine if a top tier of concepts could be identified. Five graphic concepts—J, N, U, W, and Y were rated as the top five for both appeal and for their effectiveness as a reminder to eat healthier and to look for more information.

The Symbol's Shape

After these sorting exercises, focus group participants were also specifically asked about the symbol's shape. After having seen a number of potential pyramidal and non-pyramidal replacements for the Pyramid, some participants suggested a new start for the Food Guide Pyramid, departing from the traditional shape. They believed that the current Pyramid does not work or that it is not applicable to today's nutrition information, and therefore, it is time for a change. A few others contended that there is "nothing magical"

about the Pyramid's shape that enables it to communicate health messages more effectively than other forms.

More participants, however, thought the Food Guide Pyramid provides a solid foundation from which a new symbol should be an extension. They posited that the Pyramid's current level of familiarity should be seen as an asset. To them, a stark change in direction would mean starting from the beginning in terms of both recognition and message comprehension.

Research Implications: USDA reviewed these focus group results, in addition to revisiting public comments, to determine which graphic concepts identified in the focus groups would proceed to the next phase of research and development. First, concepts that did not make the overall top five during the focus groups were eliminated from further consideration, leaving concepts J (represented by J₃), N (represented by N₂), U, W, and Y under consideration. Of these five concepts, two were pyramid-based (J₃ and U), one was pyramid-influenced (N₂), and two were non-pyramidal (W and Y).

Of the two pyramid-based concepts, only Concept J₃ proceeded to the Web test. Concept N₂, the only pyramid-influenced concept, was selected to proceed to the Web test. It was determined that Concept U portrayed accomplishment, but not physical activity. Also, since it did not connote the messages of balance or moderation, it was removed from further consideration.

One non-pyramidal concept—Concept W—was also included in the Web test since some public comments and focus group participants advocated a departure from a pyramidal shape. Concept W was selected over Concept Y for two primary reasons. First, a number of focus group participants likened Concept Y to existing logos for non-profit organizations. Second, much of the strength of Concept Y was in its perceived ability to provide additional information about healthy eating (second Sorting exercise) and not in its overall appeal and attention-getting ability.

Potential Graphic Concepts, Slogans, and Messages -- Web-TV Test

Background

Porter Novelli and Knowledge Networks, Menlo Park, CA, administered a Web-TV survey to 200 adults aged 18 and older during the third week of December 2004. Although respondents were asked to complete the survey within one week, they were able to do so at their leisure and in their own homes. Respondents were asked to provide feedback on potential concepts, slogans, and messages for the Food Guidance System. To test the materials, files containing the creative executions were placed within the survey itself—participants viewed each execution and were then asked to answer several questions (both closed-ended and open-ended) giving their opinions about each.

Even though percentages were calculated during the analysis, data were treated as qualitative. As such, percentages shown in the results were only used to detect general tendencies, not definitive outcomes. No statistical significance testing was employed. The percentages, in conjunction with responses to open-ended questions informed the decision-making process.

Tested Concepts

Web test participants evaluated four concepts. As previously explained, three of these concepts were selected from graphic concepts tested during the focus groups, and two of the three received minor modifications before Web testing (see below). A new figure, inspired by the Federal Government's HealthierUS.gov figure, was created and replaced the figures depicted in Concepts J₃ and N₂. Concept J₃ was also reversed so the climber ascends the staircase from a more traditional left-to-right direction instead of right-to-left. In addition, Concept J₃'s figure was changed to a darker color for increased prominence, and it was placed midway up the staircase to indicate the figure was in the process of ascending the stairs. Concept W did not receive any modifications before conducting the Web-TV test.



Concept N₂
Focus Groups



Concept N₃
Web-TV Test



Concept J₃
Focus Groups



Concept J₄
Web-TV Test



Concept W
Focus Groups & Web-TV Test

The Web-TV test also included a fourth graphic concept. Given focus group respondents' affinity for concepts that contained figures and connoted motion/physical activity and balance, an additional graphic concept was developed. This concept, Concept B (see below), attempted to convey these messages in a simpler manner.



Concept B

Results – Graphic Concepts

Test participants evaluated these concepts on a variety of measures. Initially, respondents were shown each concept, one at a time, and asked to assess how much it appeals to them or interests them.¹² Approximately one-in-five respondents indicated that Concepts N₃, W, and J₄ had high initial appeal¹³ (21%, 21%, and 17% respectively), followed by Concept B (12% high appeal). Over half of all participants indicated each concept had at least medium appeal¹⁴ (Concept N₃: 59%; Concept J₄: 56%; Concept B: 53%; Concept W: 52%).

Respondents were then informed that each of the tested concepts includes a variety of colors and that each color represents a different food group. They were also informed that each concept includes an element of physical activity.

Survey respondents were subsequently shown all four graphic concepts simultaneously and asked the following question, “Overall, which symbol do you think would work best as a national symbol for healthy eating and physical activity?” Forty-one percent (41%) selected Concept J₄. Concepts W and N₃ were each selected by 23% and 21% of respondents, respectively, and 14% of respondents selected Concept B.

After commenting on their preference, participants were reminded that one of these four concepts would take the place of the current Food Guide Pyramid. All respondents were presented the following information:

¹² The order in which images were shown to respondents was rotated across respondents in order to reduce the possibility of order bias.

¹³ High initial appeal refers to a response of 4 or 5 on a five-point scale.

¹⁴ A response of 3, 4, or 5 on a five-point scale.

“The original Food Guide Pyramid provided healthy eating information within the symbol. However, the purpose of the new symbol is to remind you to eat healthy and be physically active, and show you where to look for more personalized information.”

They were shown the graphic concepts a final time and asked, “With this in mind, which symbol do you think would work best as the new national symbol for healthy eating and physical activity?”

Respondents again preferred Concept J₄ (43%) over the other concepts (N₃: 22%; W: 20%; B: 15%). Answers to open-ended questions revealed that participants who preferred Concept J₄ to the others reacted positively to the physical activity connoted by the staircase. Many indicated that the inclusion of the staircase enables the graphic concept to clearly communicate the importance of balancing both healthy eating and exercise. Some respondents also noted that they relate to the figure and posited that they, like the figure on the graphic concept, could reach their nutritional goals if they ate healthfully and exercised.

Research Implications – Concepts: Although the four tested concepts received similar evaluations on appeal, respondents focused on Concept J₄ as the one concept that could best serve as a national symbol for healthy eating and physical activity. Participants’ justifications for selecting J₄ illustrated a clear interpretation and understanding of the messages each concept was designed to communicate. As a result, Concept J₄ was selected for additional testing.

Tested Slogans

Survey participants were asked to evaluate seven potential Food Guidance System slogans:

- Steps to a healthier you.
- Eat smart. Move more. Feel great.
- Eat smart, be active, America.
- Be your healthy best.
- Find your balance.
- Your foods. Your moves. Your pyramid.
- Your foods. Your moves. Your way.

Results – Slogans

Respondents were asked to look at each of the slogans in the context of a concept¹⁵ and rate the slogans’ appeal on a five-point scale. They were also asked to provide open-ended explanations of their preferences. Later in the survey, respondents were shown all

¹⁵ Two slogans were presented with each concept. As with the concepts, the order in which the slogans were presented was rotated to reduce the possibility of order bias.

of the slogans and asked to select the one that best reminds them to eat healthy and be physically active.

Overall, almost half of respondents (49%) gave “Steps to a healthier you” (shown with Concept J) a high appeal rating (see Table 2).¹⁶ Results for other slogans included “Eat smart. Move more. Feel great” (29% high appeal, shown with Concept N), “Eat smart, be active, America” (26% high appeal, shown with Concept J), “Find your balance” (22% high appeal, shown with Concept W), and “Be your healthy best” (21% high appeal, shown with both Concept B and Concept N). Respondents relegated the “Your foods...” slogans to a bottom tier on this appeal measure. Fifteen percent (15%) of respondents gave “Your foods. Your moves. Your pyramid” (shown with Concept B) a high-appeal rating, as did 13% for “Your foods. Your moves. Your way” (shown with Concept W).

When asked, “Which slogan best reminds you to eat healthy and be physically active,” over one-quarter (27%) of survey participants selected “Steps to a healthier you” over the other six presented in testing (see Table 2). This slogan was closely followed by “Eat smart. Move more. Feel great” (21%) and “Eat smart, be active, America” (17%). The bottom tier was comprised of “Be your healthy best” (11%), “Find your balance” (10%), “Your foods. Your moves. Your pyramid” (8%), and “Your foods. Your moves. Your way” (6%).

Table 2. Slogan Results Summary

Slogans	% High Appeal	% Response: Overall, which slogan do you think best reminds you to eat healthy and be physically active?
Steps to a healthier you.	49%	27%
Eat smart. Move more. Feel great.	29%	21%
Eat smart, be active, America.	26%	17%
Find your balance.	22%	10%
Be your healthy best.	21%	11%
Your foods. Your moves. Your pyramid.	15%	8%
Your foods. Your moves. Your way.	13%	6%

(Overall top tier slogans are shaded.)

Respondents who selected “Steps to a healthier you” gravitated to that slogan for three primary reasons. First, many respondents indicated that it complimented Concept J due to its staircase. Second, participants felt that the slogan reinforced the idea that better health is attained in incremental steps and was something for them to work to achieve. Third, some lauded the slogan’s clear, concise message.

The survey participants who preferred “Eat smart. Move more. Free great” appreciated the cause-and-effect relationship it depicts between diet, exercise, and good health. They also commented on the slogan’s “positive” end result. They reasoned that if they combined healthy eating with exercise, they would attain healthy living and “feel great.” Some respondents, though, thought the slogan was too wordy and prescriptive.

¹⁶ 4 or 5 on a five-point scale.

“Eat smart, be active, America” received mixed reactions. Some respondents preferred it because they found its message to be concise, motivating, and encouraging. Participants voiced differing opinions regarding the use of the word, “America.” Some found it to be inclusive, whereas others thought it inappropriate to use a nationalistic sentiment in a healthy eating message.

Results from all measures and open-ended commentary were reviewed to determine if a top tier of slogans could be identified. Consistently high scores on survey items (compared to other slogans) and evidence that respondents were able to connect the slogans to health and nutrition placed “Steps to a healthier you,” “Eat smart. Move more. Feel great” and “Eat smart, be active, America” in this top tier.

Research Implications – Slogans: Each of the top tier slogans underwent further review to identify which would be selected as the slogan for the Food Guidance System. A final decision was delayed until the Food Guidance System symbol was selected.

Messages

Respondents were randomly shown five short sets of messages that contained specific information about food groups (see below). Survey participants were asked to indicate how easy or difficult the messages were to understand and how much the information provided would help them to make better decisions about eating a healthier diet.¹⁷

Focus on Fruits

Survey participants were shown the following message:

Focus on Fruits

- Eat whole fruits — fresh, frozen, canned and dried
- Go easy on fruit juices
- Eat a variety of fruit

Almost all respondents (98%) thought this information was easy to understand (see Table 3), and more than half of the respondents (52%) indicated that this information would help them “a lot” to make better decisions about eating a healthier diet. Another 33% thought it would help them “somewhat.”

¹⁷ Understanding was indicated on a 4-point scale from “very easy” to “very difficult.” This scale was collapsed such that ratings of 1 or 2 were considered easy to understand and ratings of 3 or 4 were considered difficult to understand. The extent to which the information would help respondents make better decisions was indicated on a 5-point scale from “not at all” to “a lot.” This scale was collapsed such that ratings of 1 or 2 were considered “not at all,” ratings of 3 were considered “somewhat,” and ratings of 4 or 5 were considered “a lot.”

Vary Your Veggies

Survey participants were shown the following message:

Vary Your Veggies

- Eat more dark green veggies like broccoli, kale, and other dark leafy greens; frequently enjoy salads with greens like spinach and romaine lettuce
- Eat more orange-colored vegetables like carrots, sweet potatoes, pumpkin, and winter squash
- Eat more beans and peas like pinto beans, kidney beans, black beans, garbanzo beans, split peas, and lentils

Almost nine out of ten respondents (89%) thought this information was easy to understand (see Table 3). Almost as many respondents (85%) thought this information would help them at least “somewhat” to make better decisions about eating a healthier diet (48% a lot; 37% somewhat).

Get Your Calcium-rich Foods

Survey participants were shown the following message:

Get Your Calcium-rich Foods

- Go low fat or no fat when you choose milk, yogurt, and other milk products
- Get 3 cups of low-fat or fat-free milk – or the equivalent in yogurt and cheese – every day; for kids aged 2 to 8, it’s 2 cups
- If you don’t or can’t consume milk, choose lactose-free products and/or calcium-fortified soy foods and beverages

More than eight out of ten respondents (83%) thought this information was easy to understand (see Table 3). Eighty percent (80%) thought this information would help them at least “somewhat” to make better decisions about eating a healthier diet (41% “a lot;” 39% “somewhat”).

Make Half Your Grains Whole

Survey participants were shown the following message:

Make Half Your Grains Whole

- Eat at least 3 oz. of whole grain cereals, breads, crackers, rice, or pasta every day
- 1 oz. is about 1 slice of bread or about 1 cup of breakfast cereal
- Look for “whole” on the food package and ingredients list

Nine out of ten respondents (90%) thought this information was easy to understand (see Table 3). Almost half of the respondents (47%) thought this information would help them “a lot” to make better decisions about eating a healthier diet, and another 33% thought it would help them “somewhat.”

Go Lean on Protein

Survey participants were shown the following message:

Go Lean on Protein

- Choose low-fat or lean meats and poultry
- Bake it, broil it or grill it
- Vary your protein routine — choose more fish, beans, peas, nuts, and seeds

Most respondents (95%) thought this information was easy to understand (see Table 3). More than half of the respondents (56%) thought this information would help them “a lot” to make better decisions about eating a healthier diet, and another 30% thought it would help them “somewhat.”

Table 3. Message Results Summary

Food Group Message	% Easy to Understand	To what extent would this information help you to make better decisions about eating a healthier diet?	
		A lot	Somewhat
Focus on Fruits	98%	52%	33%
Go Lean on Protein	95%	56%	30%
Make Half Your Grains Whole	90%	47%	33%
Vary Your Veggies	89%	48%	37%
Get Your Calcium-rich Foods	83%	41%	39%

Research Implications: These messages were created in collaboration with the United States Department of Health and Human Services (HHS) during the development of the 2005 Dietary Guidelines for Americans. CNPP coordinated with HHS so that these

messages would be tested among consumers during Dietary Guidelines¹⁸ *and* Food Guidance System development. Since both rounds of testing revealed that most respondents found the messages to be easy to understand and helpful for making better decisions about eating a healthier diet, they were incorporated into the MyPyramid Food Guidance System.

¹⁸ Dietary Guidelines message testing was conducted in December 2004.

Final Graphics -- Web-TV Test

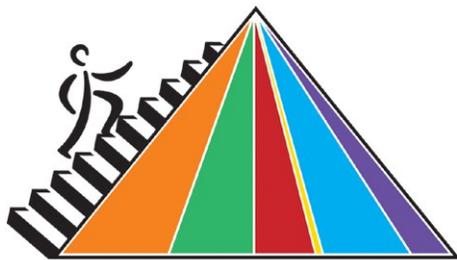
Background

A second Web-TV survey was administered to 207 adults aged 18 and older during the first week of February 2005. The purpose was to test final design options for Concept J. This test utilized the same methodology as the previous Web-TV test. Respondents were asked to complete the survey within one week but were able to do so at their leisure and in the privacy of their own homes. For this qualitative study, participants were asked to provide feedback on two potential Food Guidance System symbols.

As before, although percentages were calculated for analysis, data were treated as qualitative. As such, percentages were used to detect general tendencies, not definitive outcomes. No statistical significance testing was employed. The percentages, in conjunction with responses to open-ended questions informed the decision-making process.

Tested Concepts

For this second Web test, the primary elements of J₄ (food pyramid, staircase, and figure) were refined to give respondents the option between two graphic concepts that were similar in concept but were executed differently. The new execution, which included a revamped staircase and a new figure, was labeled Concept D. Concept J₄ from the previous Web test was included with minor refinements: its pyramidal base was widened to better illustrate proportionality and the figure was placed slightly lower on the staircase to indicate the figure was at the beginning of his/her climb (Concept J₅).



Concept D



Concept J₅

Results¹⁹

As in the initial Web test, respondents were first asked to assess the overall appeal of each concept. Twenty-one percent (21%) of participants gave Concept J₅ a high-appeal rating,²⁰ and 64% gave it at least a medium-appeal rating.²¹ Concept D received 17% high appeal and 60% medium appeal.

These participants were given the same information about the concept's intended purpose as in the previous Web test (see *Initial Web Test, Results* for exact wording) and asked, "With this in mind, which symbol do you think would work best as the new national symbol for healthy eating and physical activity?" Sixty-one percent (61%) of respondents selected Concept J₅. The remaining 39% preferred Concept D.

A number of respondents who selected Concept J₅ indicated that it was clearer and easier to interpret than the redesigned execution. To them, it better conveyed the message of physical activity and healthy eating. Several respondents compared specific elements of each concept as well. Respondents offered positive reactions to figures depicted in both concepts. While some respondents praised the figure in Concept D for its energy and movement, others connoted strength and health from the stature of Concept J₅'s figure.

Participants also compared the staircases in each concept. They noted that they preferred the stairs in Concept J₅ to those in Concept D because there are fewer of them and thus, "would be easier to climb." A few other participants commented that the lighter shading of the stairs (in Concept J₅) makes it seem easier to reach the top, and this factor, coupled with the boldness of the figure places the emphasis on the person, not on the climb.

Research Implications: USDA selected Concept J₅ to be the new symbol for the Food Guidance System based on the results from the focus groups and both Web-TV tests. Also, since almost half of respondents from the initial Web-TV test gave "Steps to a healthier you" a high-appeal rating and many commented on how well the slogan complimented Concept J, it was selected as the official slogan for the Food Guidance System.

¹⁹ Question wording for replicated measures in this Web-TV test paralleled wording employed for the initial Web-TV test.

²⁰ High initial appeal refers to a response of 4 or 5 on a five-point scale.

²¹ A response of 3, 4, or 5 on a five-point scale.

Food Guidance System Symbol



Usability Test of MyPyramid.gov Web site

Background

As previously discussed, focus group participants and public comments in response to the Federal Register Notice recommended the development of a Web site to accompany the Food Guidance System. As a result, CNPP moved forward with its proposed development of MyPyramid.gov to house additional information about the FGS, including further explanation about its nutrition messages, information on each food group, and the importance of physical activity.

In order to determine MyPyramid.gov's ability to clearly communicate intended information and consumers' ability to effectively utilize the site and its tools, Porter Novelli and User-Centered Design, Fairfax, Va, conducted a usability test on February 16 – 17, 2005. Eighteen (18) adults who indicated they are interested in nutrition participated in the interviews—nine healthy-weight and nine overweight.²² Gender, level of activity, age, and race were mixed within and across both weight categories. Data were gathered via one-hour, one-on-one interviews, during which the interviewer asked respondents to navigate through a prototype version of MyPyramid.gov. A formative testing design was employed to direct the formation and development of the Web site before launch.

Results

Respondents experienced little or no difficulty using the site navigation or the MyPyramid Plan application. The site received a great deal of positive feedback, most notably in its content, its balance between text and graphics, and its bright, colorful presentation.

Even though testing revealed that MyPyramid.gov did not suffer from any Category I usability issues,²³ there were some areas identified for potential improvement:

- Many participants misinterpreted the labels for various levels of physical activity associated with the MyPyramid Plan. Although most respondents indicated they understood the labels and they provided definitions for each, there were several occasions in which respondents misunderstood the labels' meanings. For example, few respondents classified themselves as “sedentary,” even though their current level of physical activity would actually place them in this category.
- Some respondents also exhibited some frustration searching for more detailed nutrition information about topics on the Web site. Specifically, participants were interested in learning the different nutrients included in different types of

²² Healthy weight and overweight categorizations were determined during the screening process. Potential respondents offered their height and weight so that Body Mass Index scores could be calculated for each.

²³ Category I issues are defined as severe usability issues that prevent successful operation of the site or completion of specific tasks that induce irrecoverable errors.

vegetables (e.g., dark green versus orange vegetables) or more details about how beans, nuts, and seeds could be appropriate substitutes for meat. Some of this information was included on the site, but respondents were unable to locate it.

- Several respondents requested increased personalization of the site. These respondents, who were recruited, in part, because of their interest in nutrition, often noted that they require more than general information about nutrition and physical activity. Instead, they desired information specific to their “situation.” For example, some wanted to know appropriate food substitutes if they were unable or disinclined to eat a recommended food. Others preferred guidance as to the “best” forms of physical activity. Still others thought their MyPyramid Plan should take into account additional factors, such as their weight, health, or pregnancy/lactation status to better “personalize” the results.
- Respondents also identified some minor suitability issues, including reducing the need for scrolling, providing welcome or introductory material on section home pages, clarifying labels for downloading the MyPyramid Plan results, shortening subtopic button titles, and reorganizing ounce equivalent tables.

Research Implications: USDA reviewed these findings with Porter Novelli to determine ways in which these issues could best be remedied. Changes included updating the site plan so users could more readily locate detailed and personalized information. Also, MyPyramid Tracker was made more prominent on the home page so users could easily obtain personalized assessment information. Changes were incorporated into MyPyramid.gov before its release.